A FRESH LOOK AT THE VAT

by
Kelly Edmiston
and
William F. Fox*

Expected efficiency gains (reduction in efficiency losses) have been an important argument for replacing other taxes, and particularly sales taxes, with the VAT. However, the defense of these gains is often drawn from theoretical analysis of an optimal VAT and from indirect evidence but not from actual VAT practices. For example, Ebril et al (2001, p. 27) partly defend the efficiency gains from replacing a sales tax with a VAT by comparing the gains from sales taxes as they are actually imposed with a uniform consumption tax. But, VATs, like every other tax, are legislated in political environments where the resulting structure contains a series of warts as viewed from the economist's perspective. Analysis of both the gains and the consequences of imposing VATs is most usefully accomplished in the context of the taxes as they are actually levied. Then, the efficiency gains that would result from a more efficient structure can also be evaluated, but as the difference between actual practice and the economist's ideal.

Of course, broad based consumption taxation, such as with a VAT, potentially distorts the labor-leisure choice, the savings-consumption choice (for example, depending on the expectations of future tax rates), and others. Exemptions from the VAT base and other structural features that result from the legislative process can impose a series of perverse incentives that distort producer and consumer prices and cause additional efficiency losses. At a minimum, this means that the efficiency gains from moving to an

* Assistant Professor of Economics, Andrew Young School of Policy Studies and Director, Center for Business and Economic Research, the University of Tennessee, respectively.

actually implemented VAT are lower than those that would be obtained by moving to an optimal VAT and that efforts should be made to lessen these additional distortions, but could suggest that a VAT is not always the best tax choice.

The purpose of this paper is to identify and examine some of the key VAT policy issues that have arisen in the implementation of the tax. Specifically, the paper examines four issues as examples of the specific inefficiencies that arise in actual practice with VATs. The first section examines the effect of registration thresholds, normally allowed to lessen administrative burdens, as an example of structural inefficiencies. The second section examines the tariff effects arising from administration of the VAT at border. The third section considers application of the VAT on financial services as an example of exemptions from the tax. Finally, the problem of distributing the revenues of a destination VAT levied at the subnational level is discussed.

VAT Thresholds

Nearly every VAT country allows a turnover threshold below which vendors are not required to register as taxpayers. Vendors with turnover above the threshold must register unless they are in an exempt industry. A small number of countries, such as Peru, have no threshold. From there, the range of threshold values is very broad, from relatively low amounts in countries such as Malawi ($1000), Georgia (($1500), and Romania ($7000) to relatively high levels in Cambodia ($125,000), Guinea ($134,000), and Morocco ($200,000).[1] Choice of the threshold level is normally made by comparing the administrative/compliance effects of expanding the number of taxpayers with the revenue gains from a broader tax base. The tax administration in many developing countries is often presumed to be unable to handle large numbers of taxpayers with small

[1] See Ebrill et al (2001).

turnover and little value added and the threshold frees them from this responsibility. But, developed countries generally have thresholds as well. The incentive effects of a threshold have received relatively less attention and are considered here.

In principle, existence of a threshold need have little effect on business operations if small vendors are selling to registered traders. The tax is simply added later in the production chain, and the only effect is that purchasers receive no credit for VAT imposed on purchases from small firms, allowing for some cascading of the tax. Also, small business sales to non-registered traders are only tax advantaged by the failure to impose tax on the last-stage firm's value added. In practice, however, the threshold distorts many business structure decisions. Among the incentives that are distorted by a threshold are firm size, product mix, and horizontal and vertical integration. An important reason for the distortions is that firms must remit VAT on all of their sales once their turnover exceeds the threshold, and rates are often around 20 percent.[2] As a result, the after tax producer price on all transactions immediately rises by the tax rate once the threshold is reached.

The threshold will change the type of goods produced by businesses with turnover below the threshold and will affect firm size decisions. Small firms are tax advantaged in some cases vis-à-vis registered traders because they neither bear the compliance costs nor must remit the VAT. The advantage is limited if value added is a small share of revenues for the non-registered trader when selling to other non-registered traders, since the VAT is only avoided on the value added. However, in many sectors, the VAT savings can be a significant component of total business costs. On the other hand, non-registered traders

[2] Ebrill et al (2001) provide VAT rates by country. A standard minimum 15 percent rate is applied in the EU. Ten member states impose a standard rate above 20 percent and 14 impose a lower rate. See http://www.eurunion.org/legislat/VATweb.htm#Rates

are disadvantaged in sales to registered traders because no credit is provided for tax implicit in purchased inputs, thereby allowing for cascading of the tax. The disadvantage grows with the relative importance of purchased inputs in the non-registered trader's production process. Thus, small businesses are likely to be oriented towards the final consumer market unless they produce goods that have high value added relative to gross receipts.

Keen and Mintz (2004) examine the optimal threshold value and conclude that thresholds are likely to create discontinuities in firm size[3], which is certainly not surprising since once the threshold is reached the tax is imposed on all sales and not only on the margin above the threshold.[4] Firms can be expected to bunch based on size, either hovering just below the threshold or lying well above it. This would appear to have important effects on the way that businesses expand, as they will not feel free to grow continuously, but will only rise above the threshold once the decision is made to expand significantly. In other words, a vendor below the threshold would only want to consider growing if revenues could be dramatically increased, given the immediate increase in costs (taxes) at the threshold that can be approximately 20 percent of revenues. The marginal incentive to evade taxes is particularly large at a threshold, likely increasing the extent of underreporting of sales for firms that are above, but close to the threshold.

Another response for some businesses will be to split operations into many small units, each of which lies just below the threshold. Using business splitting to evade taxes

[3] Their model does not directly address the effects on whether to produce for final versus intermediate transactions.

[4] The obvious response is to impose the VAT only on sales above the threshold. Unfortunately, this creates significant compliance difficulties in providing invoices so that buyers who are registered traders can obtain credits. Also, significant revenue losses would result from exempting the threshold amount for all registered traders.

is often illegal, but finding companies where this is taking place could be very difficult for the tax administration, particularly if each individual company is in the name of a different family member, or has a name that is sufficiently distinct so that the tax administration would have difficulty realizing the relationships. Business splitting imposes the compliance costs of operating multiple firms and potentially the loss of economies from operating as a single firm (though the business splitting may be in name only).

Vertical and horizontal integration can also be discouraged since taking advantage of either can increase the chance that firms will exceed the threshold. Discouraging either form of integration means lower profits when the production conditions indicate the potential to take advantage of economies of scale and scope. The effects are probably modest in most circumstances if the threshold is set low, but the small scale of many business operations in developing countries could result in important implications, particularly when combined with the effects of other exemptions.

Kyrgyzstan, where the VAT was only recently extended to agricultural production, provides an illustrative example of how thresholds can influence the agriculture sector and business structure decisions. Individual farmer turnover generally lies below the Kyrgyz threshold, even though the threshold is relatively small on international standards, so extension of the VAT was only expected to impose registration responsibilities on the largest firms. However, the World Bank and other parts of the international community have assisted small farmers in forming cooperatives that will among other services market farm products. The combined activity in each cooperative reaches the threshold and subjects the sales of many very small farmers to a

20 percent tax on being a member of the cooperative. Initial anecdotal evidence indicates that cooperatives are dissolving because of the tax, potentially resulting in significant efficiency losses in the sector. Imposition of the tax on cooperatives would have had little effect if the tax on food products were otherwise imposed at retail, but the tendency for many food products, and particularly those that have no processing, to be sold through small vendors or the informal market meant that the tax would not otherwise be imposed. Thus, the VAT is being imposed for the first time on some agricultural products. Small farmers apparently buy very few inputs on which VAT has been paid, so the ability to obtain credits is of very limited benefit.

VAT treatment of agriculture has also influenced vertical integration in Kyrgyzstan. Food processing but not food production was subject to the VAT prior to the recent extension of the tax to agriculture production. The result was a strong incentive to vertically integrate the food industry since the exemption for food production was in practice extended to processing when a single firm performed both. Much of the processed agricultural products were exported so there was no intent to impose VAT anywhere in the chain and no distortion should have occurred. However, domestic production was treated very differently depending on the degree of vertical integration. Processors were discouraged from purchasing from other producers since this signaled imposition of the VAT. In this case, interestingly, the VAT encouraged what is regarded by many as an important efficiency in the agricultural industry, the ability of food processors to guarantee high quality good production by producing their own inputs.

The incentives inherent in the VAT may be an important reason for the trend in business structure in Kyrgyzstan. Individual entrepreneurs have grown as a share of

employment and value added while small and medium sized enterprises have diminished in importance during the years following adoption of the VAT. Nonetheless, large firms continue to provide a large majority of value added and employment.

VAT Tariff Effects on Exports

The VAT has often been viewed as export friendly because of the border adjustments that impose the tax on imports and rebate it on exports. However, this is derived from a theoretical perspective of the tax. In fact, a number of elements of the VAT as actually imposed have a strong potential to discourage international trade and exports, and effectively cause the VAT to operate as a tariff on both imports and exports (though at different rates). First, the effective tax rate on exports is much greater than zero since the tax on inputs used in the production of exports is included until rebates are received, and this implies a significant opportunity cost of funds, particularly in developing countries where working capital is often relatively scarce. Further, VAT for which credits are not received (such as when a non-registered trader sells to a registered trader) is included in the producer prices.

Second, rebates for exports are often difficult to obtain. Many countries have made it impossible to obtain cash refunds or allowed cash refunds for VAT on intermediate transactions only after a significant delay. Until recently, for example, Kyrgyzstan did not provide for cash rebates of VAT on zero-rated transactions. Cash payments are now allowed but there continue to be long delays. These violations of the conceptual VAT structure have evolved either because of concerns about fraudulent refund claims or to provide short-term increases in tax revenue. Firms that have little if any domestic tax liability against which to use credits, and therefore seek refunds, are

particularly affected. Thus, development of a specialized set of exporters is discouraged since they are likely to pay some VAT on the value of exports but firms that mix domestic sales and exports may bear little VAT on exports.

Many countries also make it difficult to use VAT credits against other tax liabilities (including the VAT). For example, Kyrgyzstan and Romania only allow credits when supported with special invoices. Credits may also be disallowed under audit. Disallowance of legitimate credits results in pyramiding of the VAT. The motivation, as with export rebates, is fear of fraudulent credit claims and pressure on the Tax Administration to increase revenues. These concerns about fraud may be valid, but they come at a potentially high cost in terms of international trade and business structure. Thus, governments must carefully consider alternative means of reducing fraud.

Also, VAT may be imposed at higher effective rates on imports than on domestic production, even though by statute the VAT is to be applied evenly. This occurs if imports can be controlled more effectively than domestic production. Administration of the VAT on imports through the Customs Bureau and VAT on domestic activity through the Tax Administration can also affect the effective tax rate, depending on the practices exercised by each. Higher VAT rates on imports than on domestic production create a tariff that discourages imports. The reduction in imports can reduce exports as trade balances.

Desai and Hines (2002) examine the relationship between reliance on the VAT and exports.[5] They conclude that imposition of a VAT can reduce exports by one-third or more, and that the greatest effects on exports are in the lowest income countries.

[5] Desai and Hines also argue that the effect of a VAT on exports can occur because the VAT replaces other taxes that can affect exports and imports and because government tends to be greater in countries that rely on a VAT.

International trade is also found to decline with the rising role of VAT in the tax mix. Further, US multinational firms are found to reduce their exports from a country by 5 percent for every 10 percent increase in VAT collections. These results do not demonstrate causality, but certainly suggest that VATs are not uniform consumption taxes, but instead are imposed much more heavily on the international sector, that the tariff effects of a VAT are large and that the tariff effects can significantly reduce a country's ability to export.

One option to rely more heavily upon if the tariff effects of VATS cannot be lessened is appropriately structured free economic zones. The zones can be used as a means of exporting domestic production because inputs are often imported into the zone without imposition of VAT and exports are zero-rated. This suggests the opportunity to lessen the tariff effects, though VAT implicit in domestically purchased inputs still needs to be promptly rebated to the zone-based producers if the implicit VAT is to be lowered. Free economic zones can lessen the VAT implications (and other constraints) for producer/exporters, however, they are unlikely to assist development of specialized exporters because of production requirements in the zones. The zones must be structured to limit sales into the domestic economy to a small share of total production and to impose all relevant taxes on sales into the domestic economy or domestic production outside the zones will be relatively disadvantaged on both domestic and export production.

Exemption of Financial Services

Most countries that impose an invoice-credit VAT exempt financial services,[6] meaning that VAT is not levied on the supply of financial services, and credits are not allowed for VAT incurred on inputs (thus, financial institutions pay VAT on purchases of taxable goods and services used in producing the exempted supplies).

As Poddar (2003) notes, the two basic rationales for exemption under a VAT are (1) that the items to be exempted are used disproportionately by low-income people, and therefore exemption makes the VAT less regressive; and (2) the items to be exempted are merit goods, such as medical care and education. Poddar observes that financial services exemptions may be considered to make the VAT system more regressive rather than less regressive, and some financial services, such as currency trading, may actually be considered demeritable transactions (because of undesirable speculation). The exemption generally offered to the provision of financial services must then have an operational rationale, and indeed it does. Although financial services generally are exempted from the VAT for practical, administrative reasons, as discussed below, some argue that financial services should be exempted, or zero-rated, for conceptual reasons, even if it were not so difficult to apply the VAT.

Should Financial Services Be Taxed Under the VAT?

It is not altogether clear that financial intermediation charges should be subject to VAT, even if they can be properly enumerated. For business purchases of financial

[6] As used here, financial services means financial intermediation, the residual component of the cash flow of a financial transaction after principal, consideration for the time value of money, and risk premia are subtracted.

services, there is a consensus view that they should remain untaxed.[7] The view on consumer purchases is more contentious.

There are two conventional views of the proper tax treatment of purchases of financial services by final consumers, which Boadway and Keen (2003) refer to as a "fallacy" and a "half truth" (60). The fallacy is that financial services should not be taxed because they do not directly enter the consumer's utility function. The half-truth is the opposite conclusion that financial services are a commodity like any other and therefore should be taxed as such.

Grubert and Mackie (2000) argue that financial services used by consumers are not *consumption* goods and therefore should not be in the base of a consumption tax. The basic premise is that consumption goods directly yield utility to the consumer, and financial services do not directly yield utility (see also Chia and Whalley, 1999).[8] Rather, they are properly considered as a business expense, part of the price of an investment. In the future, the consumer sells the "saving good" and uses the proceeds to fund fully taxable consumption, much in the way that a real investment (a machine, say) is not taxed, but rather the future consumption financed by the machine is taxed. Grubert and Mackie argue that any advice one receives in how most profitably to use the machine (or the saving good) represents a part of the machine's total cost, and is properly expensed. Because financial intermediation services are part of the cost of investing, the fees must

[7] Boadway and Keen (2003) discuss some arguments for taxing business purchases.
[8] Chia and Whalley (1999) make a somewhat weaker statement. They do not assert that it is inappropriate to tax financial services because they do not directly enter the utility function, but rather that it *may* be inappropriate to tax financial services. They explicitly hold open the possibility that the optimal rate at which to tax financial services may be at a positive rate, albeit somewhat lower than the standard rate (705). See also Boadway and Keen (2003).

be exempted in order to avoid distorting the consumer's relative valuation of present and future consumption.[9]

Chia and Whalley (1999), following a similar line of reasoning, conclude from numerical simulations of the U.S. economy that taxing goods alone, and not financial services, yields higher welfare than taxing both goods and financial services at a lower rate with equal yield.

Several recent papers have reached a different conclusion and have accurately concluded that VAT should be collected on financial intermediation. Jack (2000) shows that in the case of implicit, spread-based charges, the finance charge automatically increases proportionately with a tax on final consumption, so taxing it would indeed distort the relative prices of present and future consumption. Consider, as Jack does, the case of an individual who forgoes one unit of current consumption, with price normalized to $1, and faces a VAT rate of 50 percent. By foregoing the one unit of consumption, he saves $1.50, which he deposits at a bank. Suppose further that the market interest rate is 10 percent, and the bank collects 20 percent on its loans, leaving an interest spread (financial intermediation charge) of 10 percent. In the absence of a VAT applied to the financial intermediation charge, the relative price of period 2 consumption and period 1 consumption is $1.50/1.65 \approx 0.91$, the same relative price that would attain in the absence of a VAT (1.0/1.1). Under a VAT applied to the financial intermediation charge, 50 percent is paid on the fee, or $0.075, leaving relative prices of $1.50/1.575 \approx 0.95$. Charging VAT on the intermediation charge has increased the relative price. In this case,

[9] Whalley (1992) asserts that the same analysis would also apply to nonfinancial services that do not directly enter the utility function, such as transportation, but Grubert and Mackie assert that the extension is not warranted because there is no analogue to a saving good that is sold to finance taxable consumption (see also Rousslang, 2002; Boadway and Keen, 2003).

where the value-added is proportional to the nominal value of the underlying transfer, financial intermediation services should not be taxed, as asserted by Grubert and Mackie (2000).

Application of VAT has different efficiency implications for the two types of financial intermediation fees that arise. In the case of fixed fees, such as a monthly account fee, it is irrelevant whether the financial service is subject to VAT, as the tax is effectively lump sum and does not affect decisions on the margin (there is only an income effect). In the case of what Jack calls "quasi-fixed fees" (842), however, there is an efficiency argument for applying the VAT. Quasi-fixed fees are charges that are proportional to the *real* value of the underlying transfer, such as fees levied at a fixed amount per transaction (*e.g.*, ATM fees and per-check fees). In this case, in the absence of a VAT, the relative price of period 2 consumption (on the margin) is $1.00/1.05 \approx 0.95$ (20 percent interest on $1.00 less the $0.15 transaction fee is $1.05). With a VAT that exempts financial intermediation charges, the relative price is a lower $1.50/1.65 \approx 0.91$. With the VAT applied to the financial intermediation fee, the relative price is the same as in the no-tax case, $1.50/1.575 \approx 0.95$. In the case of quasi-fixed fees, efficiency calls for the application of VAT to financial intermediation charges.

Fortunately, it is fixed fees and quasi-fixed fees that are easily enumerated, and therefore immune from the more practical difficulties in levying VAT on financial intermediation.

Auerbach and Gordon (2002) would extend Jack's (2000) coverage of the VAT to include taxing financial intermediation charges embedded in financial margins. They argue that Jack implicitly ignores the presence of real inputs in the production of financial

services. Using the theoretical equivalence of a VAT and a labor-income tax as a guide in their modeling, they show that both nominal after-tax wage income and nominal consumer prices are the same under a VAT and a labor-income tax. All primary and intermediate inputs used in generating financial transactions should be subject to the VAT to maintain neutrality under this system. Auerbach and Gordon agree with Jack (and also Chia and Whalley, 1999) in that certain transaction costs, such as liquidity and risk premia, do not include real inputs and increase in proportion to the nominal size of the transactions, and thus should not be taxed.

An additional reason for including the financial intermediation charge embedded in financial margins in the tax base, other than the arguments of Auerbach and Gordon (2002), is that the substitutability between forms of consideration (fee or margin) may generate other inefficiencies. If explicit fees are taxable under the VAT, but implicit fees embedded in financial margins are not, there will be an incentive to substitute margin fees for explicit fees. This presumably is the reason why explicit fees generally are exempted from the VAT, even though the conventional view is that financial intermediation charges should be taxed, but are not for practical reasons (Poddar, 2003).

Whether one takes the view that financial services should be taxed fully under the VAT, should be zero-rated under the VAT, or some intermediate view, the normal practice followed by countries of exempting financial transactions is probably not the optimal policy. Under the prevailing view that financial services should be taxed, but it is administratively difficult to do so, exemption likely represents a compromise (between full taxation and zero-rating) (Poddar, 2003). In the case of exempted supplies to final consumers, the effective tax rate generally will be less than the standard rate, but it will

not be zero, as is the case when supplies are zero-rated. Because of the lack of input tax credits, exemption allows the collection of some tax on items that would otherwise be untaxable (for practical reasons). Chia and Whalley (1999) and Boadway and Keen (2003) argue that the optimal tax rate on financial services may be some positive rate less than the standard rate. In this sense exemption may be preferred to either zero-rating or taxation at the standard rate. But the fact remains that inputs are taxed under an exemption-based system, and a better choice, conceptually if not practically, would be to tax final purchases at the optimal rate and allow for a deduction of input tax.

Efficiency issues arise with exemption for registered traders that do not arise in the case of full taxation or zero-rating. In the case of exempted supplies to intermediaries, tax cascading can occur because the input tax on exempted supplies will be embedded in the price paid. In some cases, exemption results in a higher tax burden than inclusion (Merrill and Adrion, 1995). Exemption provides an incentive to vertically integrate so as to avoid nonrecoverable VAT costs. Moreover, allocation of input tax credit to taxable and exempted supplies provides additional fodder for distortions and imposes a wasteful administrative and compliance burden. The apportionment system, which varies widely by country, creates incentives for firms to structure financial transactions in such a way as to minimize VAT liability, raising complicated transfer pricing questions (Merrill and Adrion, 1995).

The work of Jack (2000) and Auerbach and Gordon (2002) suggests that financial intermediation services should be taxed under the VAT, including fixed fees, per-transaction fees, and the portion of financial margins that covers financial intermediation.

The question then becomes how to tax financial services, especially as it applied to fees embedded in financial margins.

Practical Issues in Applying VAT to Financial Intermediation

Although some financial intermediation fees, like monthly checking account fees and automatic teller machine (ATM) charges, are explicitly enumerated, most are hidden in other charges. The financial intermediation charge is conceptually and practically difficult to separate from interest rate margins, premiums, and other financial margins charged by financial institutions, from which they derive the large bulk of their revenues. The financial intermediation charge is reflected in a higher interest cost to the borrower and a lower return to the lender.

Under the assumption that charges for financial intermediation should be included in the VAT base, proposals have been offered for ways to get around this thorny problem of separating interest rate margins and risk premiums from financial intermediation. Poddar (2003) argues four principles in doing so. The first principle is that nothing more than the financial intermediation charge should appear in the tax base. *Ad hoc* levies imposed by many developing countries, such as taxes on gross insurance premiums, fail in this regard because the financial intermediation charge is premiums less claims. The second principle is that modifications to the exemption system should reduce the tax on business inputs, therefore eliminating some tax cascading. The third principle is that modifications should lead to a broadening of coverage of financial services, as much of the inefficiencies inherent in the exemption system relate to its narrow base. Finally, modifications to the exemption system should generate administrative and compliance costs and economic distortions that are less burdensome than current practice.

The application of VAT to fixed fees and quasi-fixed fees is straightforward and consistent with Poddar's guidelines. The problem is in including implicit fees; specifically, enumerating that portion of financial margins that is representative of financial intermediation charges. Israel gets around this problem *via* the addition method; that is, they levy tax directly on wages and profits (see Boadway and Keen, 2003). Another option proposed in Canada was the subtraction method (Canadian Department of Finance, 1987): levying the tax on the excess of outputs over inputs. [10] The problem with both of these alternatives is that although they are effective in determining aggregate value-added from financial intermediation, they cannot allocate VAT on a per-transaction basis to taxable consumers and nontaxable businesses (see Boadway and Keen, 2003). The use of formulas in allocating the tax base would likely generate administrative complexities and tax planning opportunities, undermining any efficiency gains in bringing financial services under the VAT umbrella (Merrill and Adrion, 1995).

The preferred approach, considered at length in the European Union, may be to employ a cash flow tax (Institute of Fiscal Studies, 1978; Merrill and Adrion, 1995; Merrill and Edwards, 1996; Boadway and Keen, 2003; Poddar, 2003). Under the cash flow method, all cash inflows (whether in the nature of income or capital) are treated as taxable sales and are subject to tax. This would include the receipt of a loan and interest receipts. All outflows, such as the repayment of loans and interest payments, are treated as taxable purchases and are entitled to rebate. As long as the interest rate available to the government is considered the pure interest rate, the cash-flow method correctly

[10] The subtraction method also was suggested as a means of taxing lending activities of banks and similar institutions under the Nunn-Domenici USA Tax in the United States.

allocates value-added and allows for proper crediting of input tax (Boadway and Keen, 2003).

Boadway and Keen provide a simple example as to how a cash-flow approach would work.[11] They consider a loan of $1,000 to a registered trader at 15 percent, which is financed by a $1,000 deposit (from a consumer) earning 5 percent. The VAT rate is 10 percent. The bank must pay $100 tax on the deposit (an inflow), which is offset by a $100 credit when the loan is made (an outflow). When the loan is repaid, it owes tax of $115 (on an inflow of $1,150), and when the deposit is withdrawn, it takes a credit of $105 (on an outflow of $1,050). The net tax paid is $10, exactly 10 percent of the financial intermediation charge given by the 10 percent interest rate spread on a $1,000.

The cash flow approach is not without its own set of problems, however (Merrill and Adrion, 1995; Poddar, 2003). First, borrowers would have to pay tax on the gross amount of their loan, which may constrain liquidity. Second, borrowers, in addition to financial institutions, would have to calculate tax on all financial flows, which may be overly complex and burdensome administratively. Finally, the cash-flow method achieves the theoretically correct amount of tax on financial services only in present value over the course of the financial transaction. Thus, transition would cause windfall gains and losses, as would the changing of VAT rates over the course of the transaction.

The Tax Calculation Account (TCA) system gets around some of the drawbacks associated with the cash-flow method (Poddar, 2003); specifically, solving the liquidity and transition problems. The collection and crediting of tax on inflows and outflows of a capital nature is suspended. The net tax is payable at the end of the transaction and is the applicable tax on interest received minus the interest at the indexing rate (which reflects

[11] The example is modified from that presented by Boadway and Keen.

the pure time value of money) on the deferred tax. Likewise, the net credit is the applicable credit on interest paid plus the interest at the indexing rate on the deferred credit amount.

Conclusions

While there remains some disagreement in the literature, our feeling is that the sum of the theoretical arguments favors taxing financial intermediation charges, and this should be done if tax administration is sufficiently strong so that financial intermediation charges embedded in financial margins can be taxed, most likely via a cash-flow approach or tax calculation account.

Exemption raises a host of efficiency issues, including the taxation of intermediate inputs, incentives to vertically integrate so as to avoid nonrecoverable VAT costs, and incentives to structure financial transactions so as apportion the maximum amount of input tax to taxable supplies. Even if our view coincided with that of Grubert and Mackie (2000), the view being that financial services should not be taxed, exemption would not be the optimal policy, but rather zero-rating.

In countries where administration is weak, however, exemption may be a reasonable compromise policy. As noted above, the effective tax rate on exempted sales to final consumers will be less than the standard rate, but positive. Exemption therefore allows the collection of some tax on items that would otherwise be untaxable. Moreover, research suggests that the optimal tax rate on financial services may be some positive rate less than the standard rate. In these cases, probably all financial intermediation charges should be exempted, including those, such as fixed fees, that are easily enumerated.

Allocating Input Tax Credits in a Federal VAT System

In a federal system with multiple VATs at differential rates, a destination-based VAT generally is preferred to an origin-based VAT on the grounds of production efficiency. For practical reasons, however, there is cause to consider an origin-based VAT: conventional wisdom used to be that a subnational VAT would have to be imposed on an origin basis to avoid the necessity of border controls (Cnossen and Shoup, 1987; Hill and Rushton, 1993; Bird and Gendron, 2001). Recently there have been several proposals to design a system in which destination-based VATs may be imposed in the absence of border controls. Thus, mechanisms are available for distributing revenues, albeit often with significant administrative costs or limitations on federalism, allowing governments to design destination based subnational VATs. Nonetheless, the result remains that the administrative and compliance costs of allocating subnational VAT revenues on a destination basis must be netted out against the efficiency gains of using a subnational VAT versus other revenue sources. This section briefly discusses these proposals and highlights their relative merits and demerits.

The main issue is the crediting of input tax when there are cross-border sales.[12] Consider two subnational regions A and B, herein referred to as states, with VAT rates of 15 percent and 20 percent, respectively. Firm X in state A exports goods worth 100, produced with 60 worth of inputs, to firm Y in state B. A destination-based system would levy a tax of 20 (20% x 100) to state B, and the exporter would receive a credit of 9 (15% x 60) for taxes paid in A. But it is unreasonable for state B to provide credits for

[12] The problem of cross-border shopping to avoid tax or to take advantage of differential rates also has received a great deal of attention in the discussion of systems of subnational VATs. That issue is not discussed here.

taxes paid in A. The issue is how tax links are to be maintained between traders and input tax appropriately credited.

Revenue-Sharing

One option is to have a single VAT administered by the central government, with part (or all in the case of Australia) of the proceeds shared among lower level jurisdictions. This is the most common system in place today (Bird and Gendron, 2001). Distribution to subnational jurisdictions is accomplished *via* a formulary approach or on the basis of consumption statistics. This approach has obvious benefits from the perspective of administrative and compliance burdens, but is really no different than a standard fiscal equalization measure (McLure, 2000b; Bird and Gendron, 2001). A revenue sharing system does not give subnational governments revenue autonomy and accountability, which are critical for attaining the full benefits of fiscal federalism, nor is such a system likely to be acceptable to many subnational governments, as was the case with the *National Sales Tax* proposal in Canada that preceded its GST (Hill and Rushton).[13]

Independent Subnational VATs

The other extreme, which makes sense only in countries with very well-developed tax administrations at the subnational level, is to allow each jurisdiction to impose its own VAT with its own rates, and perhaps its own base. Input tax crediting would be dealt with *via* a zero-rating/deferred payment or a clearing house approach (Cnossen and Shoup, 1987).

[13] Three Maritime Provinces in Canada – Newfoundland, Nova Scotia, and New Brunswick – have accepted a variant of this system under what is referred to as the *Harmonized Sales Tax*. See Bird and Gendron (1998, 2001) for a brief description of this system.

Following the example from above, under a deferred payment approach, currently in place in the European Union (EU), exports are zero-rated and X claims an input tax credit of 9 (15% of 60) from state A. If Y is a registered trader, it does not pay import tax, but rather, pays the VAT on the import when it makes its final sale (because there is no input tax credit). There are some problems with this approach, most notably the possibility that final consumers will evade tax by "masquerading as registered traders" (McLure, 2000b, 303; see also Keen and Smith, 1996), although this can be prevented, or at least mitigated, with effective administration of an overlaid national tax (Bird and Gendron, 1998).

Under a clearinghouse mechanism, the exporter (X) would pay 6 (15% of 100 less input tax of 9) to its state of registration, A. Y would not pay a compensating import tax, and would apply for a credit of 6 from state B, its state of registration. State B would then claim compensation of 6 from state A, which would be handled by a clearinghouse. A major benefit with this system over the zero-rating/deferred payment is that the tax chain is not broken – goods cross the border with tax in tow. But McLure (2000b) notes that this system is "almost certainly too complicated to be practical" (304) and that the importing state has no incentive to carefully audit the claims for credits to be reimbursed by the exporting state.

Bird and Gendron (1998) argue that the dual VAT approach with zero-rating/deferred payment works fairly well in Québec, where the Québec VAT (the Québec Sales Tax, or QST) is applied to the price of goods and services inclusive of the federal Goods and Services Tax (GST). The key difference in Québec and the system of VATs in the EU is the existence of an overriding federal VAT. Bird and Gendron (1998)

note that the Québec government, which administers both the QST and GST, has an incentive to monitor the GST because the QST is applied to a GST-inclusive base, and that federal GST audits serve as a crosscheck, to some extent, to ensure that QST has not been evaded.

Intermediate Options

Two intermediate options have been proposed in recent years: a compensating VAT (CVAT) (McLure, 2000a), and a viable integrated VAT (VIVAT) (Keen and Smith, 1996; Keen, 2000).

The CVAT is in some sense a dual VAT, but only for intrastate sales. Exporters out of state would essentially zero-rate sales, but these sales would be subject to a central CVAT, which is levied at the same rate for all states. Credit is of course allowed for tax on purchases of registered traders, both under the state VAT for intrastate trade and the CVAT for interstate trade. Continuing with our example from above, firm X would zero-rate the sale to Y and would receive a credit of 9 for tax paid on inputs. State B would defer payment of VAT until final sale, but the central government would tax the interstate sale at the CVAT rate. Upon final sale, firm Y would apply for a credit for the CVAT paid. In the case where interstate sales are between registered traders, the end result is the same as in the dual VAT case, and no CVAT is collected on net (it is collected then credited). In the case of interstate sales to unregistered traders or final consumers, the CVAT is a final tax, and the central government would then allocate the revenues to the various states in some systematic way, presumably on the basis of interstate sales to final consumers.

VIVAT is a two-tiered VAT structure. The first tier is a nation-wide tax levied at a uniform rate across states. Sales between registered traders are taxed at this uniform rate, but final sales are taxed at independently determined state rates. The system is equivalent to a uniform base rate applied to the good or service and a system of secondary rates equal to the difference between the state-specific rates and the nationwide uniform rate (Keen, 2000). In our hypothetical case, the VIVAT works in a fashion similar to the CVAT. Assume that the VIVAT uniform rate is 17 percent. Firm X would pay 8 in tax (17 output tax less 9 for input tax). Upon final sale, firm Y would apply the 20 percent rate in state B and take an input tax credit of 17. Again, in the case where interstate sales are between registered traders, the end result is the same as in the dual VAT case, and no central tax is collected on net (it is collected then credited).

Conclusions

There are trade-offs in each of the various ways of instituting a subnational VAT in a federal system without border controls. The dual VAT is most attractive in the sense of revenue autonomy and accountability in that there is no "central edict" with respect to the state taxes applied to interstate trade, since no such taxes are applied (Bird and Gendron, 2000, 754). States set their own rates under the CVAT and VIVAT schemes, but a uniform rate is applied to interstate sales. In countries where interstate trade is significant, revenue autonomy and accountability are undermined relative to the dual VAT case.

Where the CVAT and VIVAT seem to have an advantage over the dual VAT is in maintaining the tax chain for interstate sales, thereby reducing the vulnerability of the system to fraud. This is especially important in a case where there is no federal VAT, a

case for which the VIVAT was especially designed. CVAT would have an advantage in cases where subnational tax administration is relatively weak.

In countries where there is an overlaying federal VAT and subnational tax administrations are very developed, such as Canada, the dual VAT seems like an attractive candidate. The simplicity of the CVAT is a more attractive option for countries with less developed tax administrations. Finally, in cases where subnational tax administrations are well-developed, but no federally administered VAT exists as a cross-check for noncompliance, the VIVAT offers a reasonable approach that balances subnational autonomy in rate setting with a maintenance of a consistent tax chain.

References

Auerbach, Alan J. and Roger H. Gordon (2002). "Taxation of Financial Services Under a VAT," *American Economic Review*, 92(2), 411-416.

Bird, Richard M. and Pierre Pascal Gendron (1998). "Dual VATs and Cross-Border Trade: Two Problems, One Solution?" *International Tax and Public Finance*, 5, 429-442.

Bird, Richard M. and Pierre Pascal Gendron (2000). "CVAT, VIVAT, and Dual VAT: Vertical 'Sharing' and Interstate Trade," *International Tax and Public Finance*, 7(6), 753-761.

Bird, Richard M. and Pierre Pascal Gendron (2001). "VATs in Federal States: International Experience and Emerging Possibilities," *International Bulletin of Fiscal Documentation*, 55, 293-309.

Boadway, Robin and Michael Keen (2003). "Theoretical Perspectives on the Taxation of Capital income and Financial Services," in Patrick Honohan (Ed.), *Taxation of Financial Intermediation: Theory and Practice for Emerging Economies*, Washington, DC: The World Bank.

Canadian Department of Finance (1987). *Tax Reform 1987: Sales Tax Reform*, white paper, June 18.

Chia, Ngee-Choon and John Whalley (1999). "The Tax Treatment of Financial Intermediation," *Journal of Money, Credit, and Banking*, 31(4), 704-719.

Desai, Mihir A. and James R. Hines Jr. (2002). "Value-Added Taxes and International Trade: The Evidence." Working Paper, November, 23 pp.

Ebrill, Liam et al. (2001). *The Modern VAT*, Washington DC: International Monetary Fund.

Grubert, Harry and James Mackie (2000). "Must Financial Services Be Taxed Under a Consumption Tax?" *National Tax Journal*, 53(1), 23-40.

Hill, Roderick and Michael Rushton (1993). "Harmonizing Provincial Sales Taxes with GST: The Problem of Interprovincial Trade," *Canadian Tax Journal*, 41(1), 101-122.

Institute for Fiscal Studies (1978). *The Structure and Reform of Direct Taxation*, London: Allen and Unwin.

Jack, William (2000). "The Treatment of Financial Services Under a Broad-Based Consumption Tax," *National Tax Journal*, 53(4, Part 1), 841-851.

Keen, Michael (2000). "VIVAT, CVAT and All That: New Forms of Value-Added Tax for Federal Systems," *Canadian Tax Journal*, 48(2), 409-424.

Keen, Michael and Jack Mintz (2004). "The Optimal Threshold for a Value-Added Tax." *Journal of Public Economics*, 88, 559-576.

Keen, Michael and Stephen Smith (1996). "The Future of Value-Added Tax in the European Union," *Economic Policy*, 23, 375-420.

Keen, Michael and Stephen Smith (2000). "Viva VIVAT!" *International Tax and Public Finance*, 7(6), 741-751.

McLure, Charles E., Jr. (2000a). "Implementing Subnational Value-Added Taxes on Internal trade: The Compensating VAT (CVAT)," *International Tax and Public Finance*," 7(6), 723-740.

McLure, Charles E., Jr. (2000b). "Implementing a State VAT: Breaking the Logjam in Tax Assignment," *Proceedings of the Ninety-Second Annual Conference 1999*, National Tax Association, 302-309.

Merrill, Peter R. and Harold Adrion (1995). "Treatment of Financial Services Under Consumption-Based Tax Systems," *Tax Notes*, 68(6), 1496-1500.

Merrill, Peter R. and Chris R. Edwards (1996). "Cash-Flow Taxation of Financial Services," *National Tax Journal*, 49(3), 487-500.

Poddar, Satya (2003). "Consumption Taxes: The Role of the Value-Added Tax," in Patrick Honohan (Ed.), *Taxation of Financial Intermediation: Theory and Practice for Emerging Economies*, Washington, DC: The World Bank.

Rousslang, Donald J. (2002). "Should Financial Services Be Taxed Under a Consumption Tax? Probably," *National Tax Journal*, 55(2), 281-291.

Whalley, John (1992). "Taxation and the Service Sector," in Richard Bird and Jack Mintz (Eds.), *Taxation to 2000 and Beyond*, Canadian Tax Paper No. 93, Canadian Tax Foundation.